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| EXAMINER | |
| GRAINGER, QUANA MASHELL | |

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/809,531

Applicant(s)

HORINOE ET AL.

Examiner

Quana M. Grainger

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12,13,15-20,22-26,28-38,40,41 and 43-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12,13,15-20,22-26,28-38,40,41 and 43-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12-10-2007, 8/22/07
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 12-13, 15-20, 22-26, 28-38, 40-41, and 43-46 are objected to because of the following informalities. Several claims recite “the developing agent carrier and the supply device disposed below the developing agent container when the developing device is mounted in an image forming apparatus”. However, the supply device and the developing agent carrier are inside the container and are not disposed below the container. Further, these claims recite “a first wall disposed between the developing agent container and the supply device . . .”

However, the first wall is disposed within the developing agent container and can not be between the container and the supply device.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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3. Claims 12-13, 15, 18-20, 22-23, 25-26, 28-34, 37-38, 40-41, and 43-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Goto et al. (cited by applicant, JP2001-272854A).

Goto et al. teaches a developing device, comprising: a developing agent container that contains a developing agent; a developing agent carrier 12 that carries the developing agent; a supply device 14 that is disposed facing the developing agent carrier and in contact with the developing agent carrier and supplies the developing agent stored in the developing agent container to the developing agent carrier, the developing agent carrier and the supply device disposed below the developing agent container when the developing device is mounted in an image forming apparatus; and a first means that prevents a weight of the developing agent contained in the developing agent container from directly acting in a vertical direction on an entirety of the supply device (abstract; [0032-0045], figures 5-6, 11). The developing device further comprising: a layer thickness regulating member 15 that regulates a thickness of the developing agent carried on the developing agent carrier at a downstream side from a facing position of the developing agent carrier and the supply device with respect to a movement direction of the developing agent carrier; and a second means that prevents the developing agent from accumulating above the layer thickness regulating member when the developing device is mounted in the image forming apparatus.

Goto et al. teaches an image forming apparatus, comprising: a main frame; and a developing unit that is attachable to and detachable from the main frame, the developing unit comprising: a developing agent container that contains a developing agent; a developing agent carrier that carries the developing agent; a supply device that is disposed facing the developing agent carrier and in contact with the developing agent carrier and supplies the developing agent

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stored in the developing agent container to the developing agent carrier, the developing agent carrier and the supply device disposed below the developing agent container when the developing device is mounted in the main casing of the image forming apparatus; and a first wall disposed between the developing agent container and the supply device and extends to completely cover the entirety of the supply device when the developing device is mounted in the main casing of the image forming apparatus.

Goto et al. also teaches a developing unit for use with an electrophotographic print device, the developing unit comprising: a casing having a front wall, a rear wall, a top wall, and a pair of side walls, the casing divided into a toner chamber and a developing chamber; a first wall extending from the front wall into the casing to create the toner chamber and the developing chamber; an agitator mounted in the toner chamber; a supply roller mounted in the developing chamber adjacent to the first wall and the front wall; a developing roller mounted in the developing chamber to contact the supply roller on a side away from the first wall; a regulating blade extending from the rear wall and in contact with the developing roller; and a second wall extending from the rear wall with a free end contacting the regulating blade at a side opposite where the regulating blade contacts the developing roller, wherein where the second wall is joined to the rear wall is closer to the toner chamber than where the free end of the second wall contacts the regulating blade. The first wall and the front wall form a recessed portion in which the supply roller is completely contained (figures 5-6, 11). The developing unit wherein a plane passing through the axis of the supply roller and the axis of the developing roller forms an acute angle with a vertical plane passing through the axis of the developing roller when the developing unit is mounted in the print device (figures 5-6 or 11).

Goto et al. teaches a developing device, comprising: a developing agent container that contains a developing agent; a developing agent carrier that carries the developing agent; a supply device that is disposed facing the developing agent carrier and supplies the developing agent stored in the developing agent container to the developing agent carrier, the developing agent carrier and the supply device disposed below the developing agent container when the developing device is mounted in an image forming apparatus; and a first wall that is disposed between the developing agent container and the supply device and covers at least part of the entirety of an upper portion of the supply device when the developing device is mounted in the image forming apparatus, the first wall is integrally formed as one piece with a casing of the developing device; wherein a space is provided between a free end of the first wall and the supply device, wherein a distance between the supply device and the first wall is smaller than the size of the supply device (Figures 5, 6, or 11). The supply device is a supply roller, and the distance between an outer surface of the supply roller and the first wall is smaller than a diameter of the supply roller (figures 5-6, 11). The supply device is a supply roller, and the first wall extends along an outer surface of the supply roller (figures 5, 6, 11). The developing agent carrier and the supply device are urged into contact with each other at a facing position, and move in opposite directions at the contact position (figures 5, 6, 11).

Goto et al. teaches a developing device, comprising: a developing agent container that contains a developing agent; a developing agent carrier that carries the developing agent; a supply device that is disposed facing the developing agent carrier and in contact with the developing agent carrier and supplies the developing agent stored in the developing agent container to the developing agent carrier, the developing agent carrier and the supply device

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disposed below the developing agent container when the developing device is mounted in an image forming apparatus; and a first wall that is disposed between the developing agent container and the supply device and covers an upper portion of the supply device when the developing device is mounted in the image forming apparatus, wherein the first wall is disposed so as to store the entirety of the supply device within a plane of projection in a vertical direction from a free end of the first wall when the developing device is mounted in the main casing of the image forming apparatus (abstract figures 5-6, 11). The first wall is disposed so as to store the supply device within a plane of projection in a vertical direction of the first wall when the developing device is mounted in the image forming apparatus. The first wall is disposed so as to produce a flow of the developing agent by moving the developing agent between the first wall and the supply device along with a movement of the supply device, when the developing device is mounted in the image forming apparatus. The first wall is disposed near the supply device. The developing device further comprising: a layer thickness regulating member 15 that regulates a thickness of the developing agent carried on the developing agent carrier at a downstream side from a facing position of the developing agent carrier and the supply device with respect to a movement direction of the developing agent carrier; and a second wall having a first end disposed near a facing position of the developing agent and the layer thickness regulating member over the layer thickness regulating member when the developing device is mounted in the image forming apparatus. The first end of the second wall inclines downward and a second end of the second wall inclines upward. The developing agent carrier is a developing roller, the supply device is a supply roller, and the developing roller and the supply roller are disposed such that an angle formed by a first line horizontally passing through a center of rotation of the

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developing roller and a second line connecting the center of rotation of the developing roller and a center of rotation of the supply roller is greater than or equal to 45 degrees, when the developing device is mounted in the image forming apparatus. The developing device further comprises an agitating member that is provided in the developing agent container and agitates the developing agent, wherein the agitating member moves, at the closest position to the developing agent carrier, in the same direction as a flow of the developing agent produced near the developing agent carrier by the movement of the developing agent carrier.

Goto et al. teaches a developing device, comprising: a developing agent container that contains a developing agent; a developing roller that carries the developing agent; and a supply roller that is disposed facing the developing roller and in contact with the developing roller to form a nip therewith, and supplies the developing agent stored in the developing agent container to the developing roller, the developing roller and the supply roller disposed below the developing agent container when the developing device is mounted in the image forming apparatus, wherein the supply roller is disposed above the developing roller when the developing device is mounted in the image forming apparatus; and the developing roller and the supply roller are disposed such that an angle formed by a first line horizontally passing through a center of rotation of the developing roller and a second line connecting the center of rotation of the developing roller and a center of rotation of the supply roller is greater than or equal to 45 degrees, when the developing device is mounted in the image forming apparatus, further comprising a first wall that is disposed between the developing agent container and the supply roller and covers an entirety of the supply roller when the developing device is mounted in the

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image forming apparatus. The developing device is attachable to and detachable from a main casing of the image forming apparatus. The toner is a single-component toner [0002].

4. Claims 12-13, 22-23, 25, and 29-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Eun et al. (2003/0118374A1). The developing device (figures 3-5) that is detachably attached to a main casing of an image forming apparatus by Eun et al. comprises a developing agent container 118 that contains a developing agent; a developing agent carrier 114 that carries the developing agent; a supply device 126 that is disposed facing the developing agent carrier and in contact with the developing agent carrier and supplies the developing agent stored in the developing agent container to the developing agent carrier, the developing agent carrier and the supply device disposed below the developing agent container when the developing device is mounted in the main casing of the image forming apparatus; and a first means that prevents a weight of the developing agent contained in the developing agent container from directly acting in a vertical direction on an entirety of the supply device (protruding portion between labels 122 and 124). Eun et al. teaches a developing device, comprising: a developing agent container that contains a developing agent; a developing agent carrier that carries the developing agent; a supply device that is disposed facing the developing agent carrier and supplies the developing agent stored in the developing agent container to the developing agent carrier, the developing agent carrier and the supply device disposed below the developing agent container when the developing device is mounted in an image forming apparatus; and a first wall that is disposed between the developing agent container and the supply device and covers at least part of an upper portion of the supply device when the developing device is mounted in the

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image forming apparatus, the first wall is integrally formed as one piece with a casing of the developing device; wherein a space is provided between a free end of the first wall and the supply device, wherein a distance between the supply device 126 and the first wall is smaller than the size of the supply device (figures 3-5). The supply device is a supply roller, and the distance between an outer surface of the supply roller and the first wall is smaller than a diameter of the supply roller (figures 3-5). The regulating means 122 is attached to the second wall. The first wall is between the developing agent container and the supply device. The first wall is disposed so as to produce a flow of the developing agent by moving the developing agent between the first wall and the supply device 126 along with a movement (rotation) of the supply device, when the developing device is mounted in the image forming apparatus.

The developing device further comprising: a layer thickness regulating member 122 that regulates a thickness of the developing agent carried on the developing agent carrier at a downstream side from a facing position of the developing agent carrier and the supply device with respect to a movement direction of the developing agent carrier; and a second wall (attached to 120 and 122) having a first end disposed near a facing position of the developing agent and the layer thickness regulating member over the layer thickness regulating member when the developing device is mounted in the image forming apparatus.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 26, 36, and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eun et al. in view of Takiguchi et al (5,137,796). Eun et al. teaches non-magnetic toner but does not teach the bulk density for the developing agent container or magnetic toner. The examiner takes official notice that it is known in the art to use a processing cartridge for the convenience of maintenance it provides. The examiner takes official notice that it is known in the art to rotate the developing agent carrier and the supply device as claimed.

Takiguchi teaches a developing agent has a packed bulk density of greater than or equal to 0.646 g/ml at an initial use (column 25, lines 6-10). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the teaching of Takiguchi et al. with the developing device of Eun et al. to obtain a toner that is environmentally safer (Takiguchi et al.; column 4, lines 48-51). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the teaching of Takiguchi et al. with the

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developing device of Eun et al. to obtain the benefits of an appropriate packed bulk density (Takiguchi et al.; column 25, lines 6-31).

8. Claims 16-17, 24, and 35 rejected under 35 U.S.C. 103(a) as being unpatentable over Goto et al. in view of Ishii et al. (6,594,462). Goto et al. does not teach that the image forming apparatus comprising a plurality of developing agent containers, developing agent carriers, supply devices, and first walls in the same number as a plurality of colors for the developing agent or the distance between the supply device and the first wall is smaller than 10 mm or equal to 10mm. The examiner takes official notice that color image forming devices are well known that use plural developer agent container having first and second walls such as shown in applicant cited reference Sugiura (6,339,689) and that it is within ordinary skill to select the distances between components within a developing device.

Ishii et al. teaches a developing device further comprising substantially spherical particles (column 8, lines 7-13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the teaching of use the teaching of Ishii et al. with the developing device of Goto et al. to reduce toner consumption (Ishii et al.; column 4, lines 58-62).

9. Claims 16-17, 24, and 35 rejected under 35 U.S.C. 103(a) as being unpatentable over Eun et al. in view of Ishii et al. (6,594,462). Eun et al. does not teach that the image forming apparatus comprising a plurality of developing agent containers, developing agent carriers, supply devices, and first walls in the same number as a plurality of colors for the developing

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agent or the distance between the supply device and the first wall is smaller than 10 mm or equal to 10mm. The examiner takes official notice that color image forming devices are well known that use plural developer agent containers having first and second walls such as shown in applicant cited reference Sugiura (6,339,689) and that it is within ordinary skill to select the distances between components within a developing device.

Ishii et al. teaches a developing device further comprising substantially spherical particles (column 8, lines 7-13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the teaching of use the teaching of Ishii et al. with the developing device of Eun et al. to reduce toner consumption (Ishii et al.; column 4, lines 58-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the teaching of use the teaching of Eun et al. with a color image forming apparatus as is known in the art.

Prior Art

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ito et al., Fukuda, Kobayashi et al., and Doi et al. teach pertinent prior art.

Response to Arguments

2. Applicant's arguments filed 11-27-2007 have been fully considered but are moot in view of the new ground(s) of rejection.

3. As to applicant arguments concerning Eun, applicant states that "Eun fails to disclose or suggest a developing device that includes "a first means that prevents a weight of the developing agent contained in the developing agent container from directly acting in a vertical direction on

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an entirety of the supply device," as recited in independent claim 12. The Office Action alleges that Eun discloses a developing device including toner storage 118 which includes a protruding section shown between labels 122 and 124. The Office Action further alleges that this protruding portion prevents a weight of the developing agent from acting in a vertical direction on an entirety of supply roller 126. See Office Action at page 2." Further, applicant states "Eun does not disclose a developing device including a means that prevents the weight of the developing agent from acting in a vertical direction on an entirety of the supply device, because as can be seen in Figs. 3-5 of Eun, there is a substantial portion of supply roller 126 that would be exposed directly to the weight of the developer in the vertical direction. That is, there is no structure in Eun's device to prevent the weight of the developer from acting on supply roller 126, at least over a substantial part of the upper surface of supply roller 126. The protruding portion cited in the Office Action only extends over a small portion of roller 126. Thus, for at least this reason, independent claim 12 is patentable over Eun."

However, the protruding portion of Eun does prevent the totality of the weight of toner from acting on the supplying roller. Only a portion of the weight of the toner acts on the supply roller, which is not the entire weight of the toner.

The claims remain rejected as discussed above.


Contact Information

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quana M. Grainger whose telephone number is 571-272-2135. The examiner can normally be reached on 8am-6pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on 571-272-2119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Quana M. Grainger
Primary Examiner
Art Unit 2852

QG